**BEFORE THE**
**LOUISIANA PUBLIC SERVICE COMMISSION**

| | | |
|---|---|---|
| **LOUISIANA PUBLIC SERVICE COMMISSION EX PARTE** | ) | |
| **IN RE: RE-STUDY OF THE FEASIBLITY OF A RENEWABLE PORTFOLIO STANDARD FOR THE STATE OF LOUISIANA** | ) | **DOCKET R-28271 SUBDOCKET B** |

**JOINT ANNUAL REPORT OF ENTERGY GULF STATES LOUISIANA, L.L.C. AND ENTERGY LOUISIANA, LLC**

Entergy Gulf States Louisiana, L.L.C. and Entergy Louisiana, LLC (collectively, the "Companies") respectfully submit this Joint Annual Report to the Louisiana Public Service Commission ("LPSC" or the "Commission") per the requirements of Section 7 of the Commission's General Order No. 12-09-10 (R-28271 Subdocket B)(Corrected) dated December 9, 2010 ("LPSC G.O. 12-09-10").

**Research Component**

In conjunction with the requirements of Section 3 of LPSC G.O. 12-09-10, the Companies are not electing to construct any small-scale, self-build renewable projects. Instead, the Companies have developed and are promoting a Standard Offer Tariff called Rate for Renewable Energy Purchases ("Schedule REP"). Schedule REP was designed to be in conformance with the requirements of Section 3.1.2 of LPSC G.O. 12-09-10 and was finalized and filed at the Commission on February 23, 2011. Additionally, the Companies simultaneously filed an associated document entitled *Agreement for Interconnection and Purchased Power from a Qualifying New Renewable Resource.*

Now that the tariff and associated standard power purchase agreement have been finalized and filed at the Commission, the Companies plan to promote the availability of Schedule REP to interested parties. For example, the Companies plan to reach out to various stakeholders including industry trade groups such as the Louisiana Farm Bureau and the American Sugar Cane League.

**Request for Proposal ("RFP") Component**

In anticipation that the Commission would approve the Staff's Final Recommendation regarding a renewable pilot program at its June 2010 Business & Executive ("B&E") Session, the Companies provided written notice to the Commission on June 4, 2010 of their intent to issue a renewable resource RFP sometime during the 3rd quarter of 2010. The Companies further requested and were subsequently granted relief from certain requirements of the Commission's Market Based Mechanism General Order. The 3rd Quarter 2010 anticipated RFP timing was predicated upon the Commission

approving the Staff's Final Recommendation in June 2010 and subsequently timely approving a final Renewable Energy Pilot Implementation Plan ("Pilot IP") approximately 90 days later at the September 2010 B&E.

With the expectation that the Commission would timely vote to approve a final Renewable Energy Pilot IP, Entergy Services, Inc. ("ESI") acting on behalf of the Companies established a renewable energy RFP website,[1] posted draft product Term Sheets and Due Diligence questions, and held a Bidder's Conference on August 18, 2010 in Baton Rouge, Louisiana. More than 200 people participated in person and on the phone at the renewable RFP Bidder's Conference. The draft schedule released at the August 18, 2010 Bidder's Conference indicated that the RFP would be issued in late October 2010 assuming the Commission would be approving a final Pilot IP at the Commission's September B&E meeting.

The Commission ultimately voted to approve the Staff's proposed final Pilot IP at its October 2010 B&E meeting. In conjunction with that approval, ESI on behalf of the Companies amended certain requirements of the RFP product Term Sheets to reflect changes made by the Commission after the initial drafts were posted in August 2010. Updated drafts of the product Term Sheets were posted to the renewable RFP website, and ESI continued to address questions and concerns via the posting of updated Questions & Answers to the renewable RFP website. The Commission issued a corrected General Order on December 9, 2010 and per the requirements of Section 4 of LPSC G.O. 12-9-10, ESI on behalf of the Companies issued its 2010 Request For Proposals (RFP)

[1] https://emo-web.no.entergy.com/ENTRFP/Renewable/RenIndex.html

For Long-Term Renewable Energy Resources ("2010 Renewable RFP") on December 10, 2010.

On January 6, 2011, ESI held a Resource Delivery Webcast to provide prospective 2010 Renewable RFP bidders with a better understanding of the requirements of the transmission and distribution interconnection process. The webcast presentation was delivered by Entergy's System Planning employees, support personnel from the Energy Delivery Group within ESI as well as a representative from the Southwest Power Pool ("SPP"), which acts as the Independent Coordinator of Transmission ("ICT") for the Entergy System. Approximately 150 participants joined the webcast and numerous clarifying questions were submitted electronically. All submitted questions were either addressed during the webcast or were subsequently addressed in writing, and responses to all questions submitted during the webcast were posted to the 2010 Renewable RFP website.

From January 10 – 13, 2011, interested bidders were required to formally register their proposals via the 2010 Renewable RFP website portal. Highly Sensitive Table 1 summarizes bids that were registered. Note that this aggregate data represents information self-supplied by prospective bidders and may or may not reflect proposals actually submitted.

**Highly Sensitive Table 1. Bid Registrations Received January 10 – 13, 2011.**

**REDACTED**

By January 26, 2011, registered bidders were required to submit the $5,000 fee for each proposal. Highly Sensitive Table 2 summarizes resources that paid the proposal

submission fee. As with self-supplied registration data summarized in Highly Sensitive Table 1, the aggregated data below may or not may reflect proposals actually submitted. In several instances, prospective bidders paid, but then withdrew some or all of their proposals from the process before the February 3, 2011 proposal submission deadline, and ultimately received a refund of their proposal submission fee.

**Highly Sensitive Table 2. Paid Proposals Received January 26, 2011.**

**REDACTED**

From January 31 - February 3, 2011, bidders who had paid their submittal fee(s) were allowed to submit their proposal(s) via the 2010 Renewable RFP web portal. Highly Sensitive Table 3 summarizes bids received during the submittal window.

**Highly Sensitive Table 3. Proposals Received January 31 – February 3, 2011.**

**REDACTED**

From a diversity standpoint, proposals submitted in response to the 2010 Renewable RFP represent a variety of technologies as well as a mix of baseload and as available capacity.

ESI is currently reviewing the proposals to determine conformance with the requirements of LPSC G.O. 12-09-10 as well as the RFP documents. Consistent with the representative RFP schedule posted on the 2010 Renewable RFP website, it is expected

that the Phase I "threshold" screening review will conclude by April 2011 and that any non-conforming proposals will then be rejected and those bidders notified. Remaining proposals will be analyzed during Phase II and it is anticipated that this evaluation will conclude with the development of the preliminary shortlist by June 2011. After detailed evaluations are conducted in Phase III, ESI will recommend a Primary Award List and a Secondary Award List of proposals by November 2011. Negotiations to reach definitive agreements with selected bidders will begin and these negotiations are expected to conclude in early 2012 and may result in some definitive agreements at that time.

While Section 7.1 of LPSC G.O. 12-09-10 requires that utilities collect and provide information such as data assumptions, economic evaluations performed, and evaluations of technology types and fuels, such detailed analyses have not yet been completed on proposals received during the proposal submittal window that ended February 3, 2011. The Companies will provide more detailed analyses based on information from the 2010 Renewable RFP in the next annual report to be submitted to the Commission in February 2012.

**Refresh of the 2009 Strategic Resource Plan**

In 2009, ESI's System Planning Organization ("SPO") issued a comprehensive 20-year System Resource Plan ("2009 SRP") that it had prepared for the Entergy System covering the years 2010-2029. During 2010, ESI prepared a "refresh" to the 2009 SRP ("2009 SRP Refresh") addressing a number of key drivers, including updated load and sales forecasts, capital and operating cost assumptions, fuel price forecasts, and timing of various generating capacity additions and retirements.

Per the 2009 SRP Refresh analyses, renewable resources continue to require a premium absent subsidies or government mandates. However, since the 2009 SRP, SPO has developed a greater understanding of certain renewable technologies, including biomass, wind, solar PV, and geothermal. Table 4 summarizes refreshed capital cost estimates on a $ per kW basis for common renewable generation technologies that may have possibly been bid into the 2010 Renewable RFP.

**Table 4. 2010 SRP Refresh Installed Capital Cost Estimates ($2009).**

| Renewable Technology | Fuel | Installed Cost ($/kW) |
|---|---|---|
| Biomass | Agriculture / Forestry | $3,500 |
| Hydrokinetic | Not Applicable | Not Available |
| Solar PV | Not Applicable | $5,000 |
| Wind On-Shore | Not Applicable | $2,000 |
| Wind On-Shore (Off-System) | Not Applicable | $2,500 |
| Wind Offshore | Not Applicable | Not Available |

Although prices for commodities commonly used in renewable generation projects such as steel, cement, and copper have been very volatile of late, it is important to note that overall installed costs for some technologies have seen some downward movement in the past 12 – 18 months due to increased (and in some cases excess) manufacturing capacity relative to demand and, in particular, growing exports from low-cost manufacturers in China. This last point is very important for solar PV, and recent articles about several closures of solar PV manufacturing facilities in the U.S. have pointed to growing, low-cost imports from China as a key reason for reduced competitiveness of U.S. manufactures, but also for lowered installation costs for solar PV

projects.[2] Similarly, recent press releases regarding new land-based wind farm projects indicate that wind turbine prices may have fallen also to some degree.

Entergy's SPO has also developed a more rigorous biomass fuel forecast and examined how wind resource performance might improve if the resource was located in the SPP region versus within the Energy System region. For example, the estimate for potential average annual capacity factor for a wind project located in SPP has been increased from 35% to 39%, but the capacity value has been lowered from 30% to 5% (note that the SPP Regional Transmission Organization assigns a 5% capacity value to wind farms in the SPP footprint).

As results of the 2010 Renewable RFP become available in 2011, they will be used to help refine Entergy SPO's understanding of the viability, as well as capital and operating costs, of renewable technologies for projects located both in Louisiana as well as in the broader region. However, based on information currently available and SPO's most recent analyses for the 2009 SRP Refresh, without regulatory or tax-driven subsidies, the overall delivered cost of renewable resources remains above that of conventional generation alternatives such as gas-fired combined cycle gas turbine ("CCGT") resources. Given potentially lower installed costs, however, new land-based wind projects may be competitive or possibly even lower than a gas-fired CCGT when evaluated on a bus bar cost basis, but the operational costs and planning reserves to integrate intermittent resources is likely to increase total delivered costs. More broadly, lower near and longer-term natural gas prices due to increased supplies from unconventional sources (*e.g.*, shale) make it even more difficult for renewables to

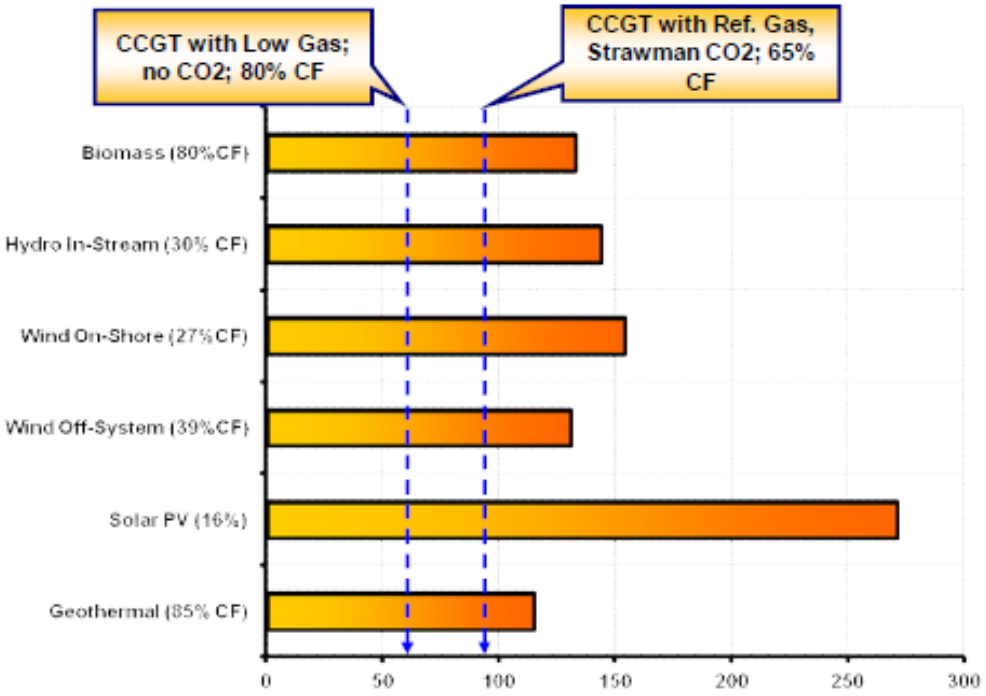
[2] *Evergreen Solar closing Massachusetts plant, cutting 800 jobs*; January 12, 2011; Reuters.

compete. This phenomenon is not unique to Louisiana and has been documented in other parts of the U.S. where renewable resources are being developed in conjunction with state renewable portfolio standards.

Despite their higher cost, however, adding moderate quantities of renewable resources may be beneficial to the Companies' supply portfolios because these resources improve fuel diversity and security, which helps lower volatility and customer price risk. Furthermore, adding renewable resources potentially provides environmental and economic development benefits that indirectly benefit Louisiana customers. The chart below provides a cost comparison of key renewable technologies versus a new build, natural gas-fired CCGT facility using several different sets of assumptions related to long-term natural gas prices, carbon dioxide ("$CO_2$") prices, and the CCGT's annual capacity factor.

**INTENTIONALLY LEFT BLANK**

**Chart 1: Comparison of Costs of Renewable Resources versus a CCGT.**




Assumptions

- Detailed assumptions regarding natural gas price forecasts and $CO_2$ forecast scenarios can be found in the 2010 SRP Refresh available on the 2010 Renewable RFP website under Entergy Reference.
- Wind Off-System assumes $500 per kW generic off-system transmission adder.
- Resources are assumed to be located in or close to the Entergy System region. Wind Off-System is assumed to be located in SPP.
- Renewable costs do not include incentives or Renewable Energy Credit ("REC") value.
- Wind On-Shore, Wind Off-System, and Solar PV costs include flexibility and back-up capacity costs.

While Chart 1 above was prepared based on the data summarized in Table 4 and the listed assumptions, the economics of convention gas-fired CCGT projects have improved due to lower long-term natural gas prices as well as the diminished prospect of federal $CO_2$ legislation being enacted and implemented in the next 3 – 5 years.

## 1603 Grant Recipients

A useful reference point to calibrate recent activities (2008 – 2010 timeframe) related to renewable generation development in the U.S. is to analyze current public data

from the U.S. Department of Treasury's 1603 grant program, which was extended by Congress at the end of 2010 for one additional year.[3] The federal 1603 grant program is widely credited with providing a lifeline to new renewable projects during the severe recession that began in 2008 and, thus, is a good indicator of the types of renewable projects that developers are pursuing. Table 5 summarizes the total number and dollar amount of award recipients by type of technology.

**Table 5. Summary of 1603 Grants by Technology (as of February 21, 2011).**

| Technology | # Grants | Grant $s | % of Grant $s | Average Grant $s |
|---|---|---|---|---|
| Biomass (open loop, cellulosic) | 12 | $105,933,765 | 1.77% | $8,827,814 |
| Biomass (open loop, livestock) | 17 | $9,937,850 | 0.17% | $584,579 |
| Combined Heat & Power | 5 | $4,733,064 | 0.08% | $946,613 |
| Fuel Cell | 10 | $9,752,923 | 0.16% | $975,292 |
| Geothermal (heat) | 2 | $2,230,290 | 0.04% | $1,115,145 |
| Geothermal (electricity) | 5 | $260,674,171 | 4.35% | $52,134,834 |
| Geothermal (heat pump) | 20 | $4,385,368 | 0.07% | $219,268 |
| Hydropower (incremental) | 5 | $6,806,273 | 0.11% | $1,361,255 |
| Hydropower (new) | 2 | $511,270 | 0.01% | $255,635 |
| Landfill Gas | 10 | $20,229,384 | 0.34% | $2,022,938 |
| Microturbine | 3 | $82,500 | 0.00% | $27,500 |
| Small Wind | 115 | $49,172,443 | 0.82% | $427,586 |
| Solar Electricity | 1,434 | $522,735,859 | 8.72% | $364,530 |
| Solar Thermal | 114 | $3,818,165 | 0.06% | $33,493 |
| Trash Facility | 2 | $2,748,064 | 0.05% | $1,374,032 |
| Wind Farm (land-based) | 122 | $4,993,850,210 | 83.26% | $40,933,198 |
| **Totals** | **1,878** | **$5,997,601,599** | **100.00%** | **$3,193,611** |

Thus far, approximately 96.3% of 1603 grant awards have gone to just three renewable technologies: geothermal electricity, solar electricity (PV), and land-based wind. The third largest category of grants (geothermal electricity) consists of one extremely small project in Pennsylvania and four very large projects in California (1),

[3] http://www.treasury.gov/initiatives/recovery/Pages/1603.aspx

Nevada (2), and Utah (1). Based on a cursory evaluation, it appears that the 1603 grant process has been dominated thus far by renewable projects that are either relatively straightforward, and thus quicker to deploy by comparison to other technologies (*e.g.* solar PV), or are already among the lower cost renewable alternatives available (land-based wind and large-scale geothermal). Looked at another way, the combined grants to all the other renewable technologies represent only $220M out of almost $6B total thus far awarded by the U.S. Department of Treasury. Anecdotally, this likely reflects the relative difficultly of developing certain technologies (biomass), their overall higher costs on a $ per MWh basis, as well as the longer timeline involved with bringing such projects on-line.

**Update on Promising Renewable Technologies**

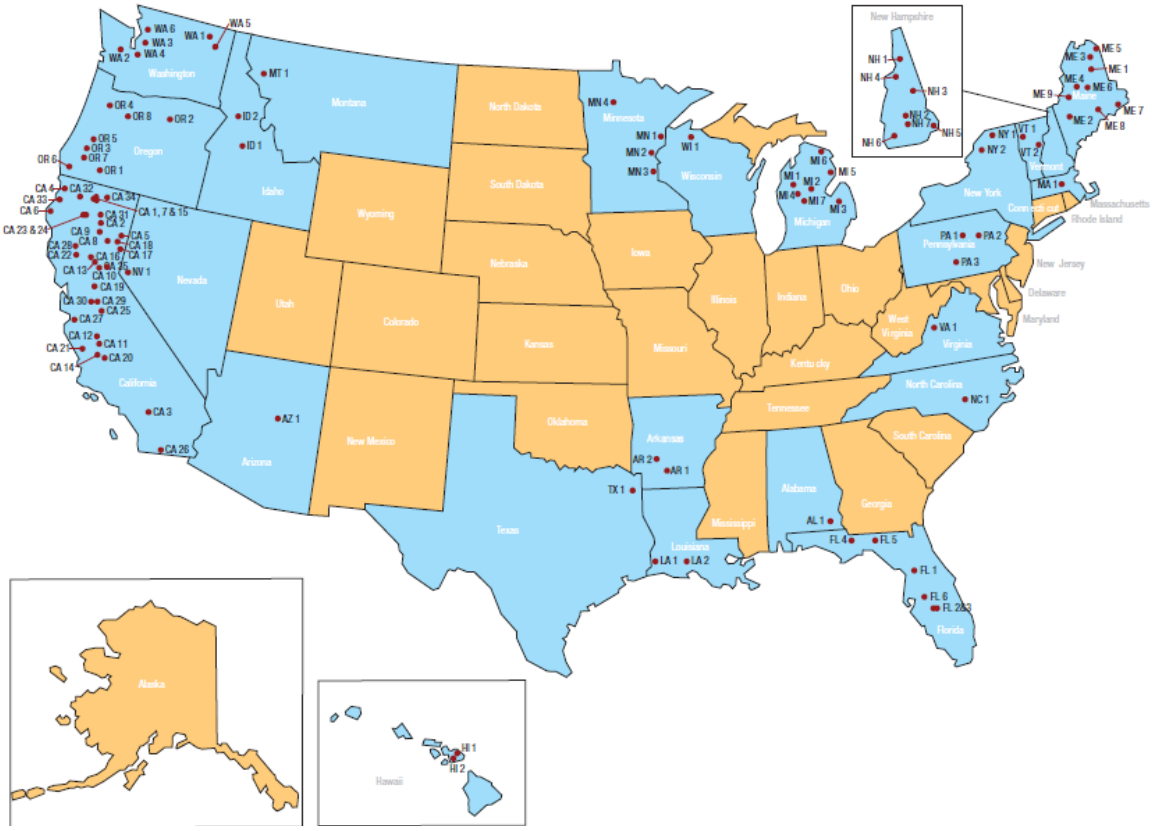
The remainder of this report addresses recent information gathered by Energy's SPO and the Companies on renewable technologies included above in Table 4 and Chart 1. Technologies that are not considered commercially developed and widely available, such as ocean thermal, tidal, and solar thermal, for example, are not addressed in this report due to the lack of available public information. Likewise, resources that use technologies that are typically developed on a very small scale, for example less than 5 MW, such as biologically-derived methane gas, distributed generation systems, and fuel cells are also not addressed in this report.

**Biomass**

According to the Biomass Power Association ("BPA"), existing biomass-fueled electricity plants are concentrated in the western states, the southeast, the upper

midwestern states, and in the northeast.[4] These areas are traditionally where wood products facilities, sawmills, and pulp and paper mills were located due to the proximity of available private and public forest lands. Chart 3 below shows the location of existing biomass-fueled electricity producing facilities in the U.S.

**Chart 2: Location of Existing Biomass Electricity Facilities in the U.S.**




In terms of recent activity though, there has been widespread interest in developing new biomass-fueled power plants. Both greenfield and repowering / co-firing projects have been announced in many states. In contrast to other renewable technologies like wind and geothermal where 1603 grant awards are concentrated in a handful of

[4] http://www.usabiomass.org/docs/USA%20Biomass%20National%20Map%2010_01_10.pdf

states, 1603 grants to cellulosic (*i.e.*, from plant fiber) and livestock-based projects are more widespread in terms of geographic diversity. Table 6 summarizes 1603 grant awards to-date to cellulosic and livestock-based projects.

**Table 6. Biomass 1603 Grants by State (as of February 21, 2011).**

| State | # Grants | Grant $s | % of Grant $s | Average Grant $s |
|---|---|---|---|---|
| Pennsylvania | 1 | $39,226,475 | 33.9% | $39,226,475 |
| Washington | 2 | $18,298,637 | 15.8% | $9,149,319 |
| Michigan | 2 | $12,222,988 | 10.5% | $6,111,494 |
| Texas | 1 | $10,232,261 | 8.8% | $10,232,261 |
| Georgia | 1 | $8,503,434 | 7.3% | $8,503,434 |
| California | 3 | $8,353,279 | 7.2% | $2,784,426 |
| Montana | 1 | $6,465,081 | 5.6% | $6,465,081 |
| Florida | 2 | $3,854,684 | 3.3% | $1,927,342 |
| Vermont | 3 | $1,995,590 | 1.7% | $665,197 |
| New York | 3 | $1,887,834 | 1.6% | $629,278 |
| Massachusetts | 2 | $1,614,668 | 1.4% | $807,334 |
| Idaho | 1 | $1,530,522 | 1.3% | $1,530,522 |
| Wisconsin | 4 | $1,130,756 | 1.0% | $282,689 |
| Colorado | 1 | $296,977 | 0.3% | $296,977 |
| Oregon | 1 | $142,597 | 0.1% | $142,597 |
| Mississippi | 1 | $115,832 | 0.1% | $115,832 |
| **Totals** | **29** | **$115,871,615** | **100%** | **$3,995,573** |

In the vicinity of Louisiana, on-going activity appears to be continuing on several large-scale (50 MW or greater) biomass projects in Texas, Georgia, and Florida. In late 2009, Southern Power, an unregulated subsidiary of Southern Company, acquired a 100 MW woody biomass project being developed near Sacul, Texas.[5] The company broke ground on the project in November 2009 and a press release at the time provided the following insights:[6]

[5] *Southern Company to Build Biomass Plant in East Texas*; October 9, 2009; Southern Company.
[6] *Southern Company Begins Construction on Biomass Plant*; November 10, 2009; Southern Company.

> Southern Power acquired the 100-megawatt project – the Nacogdoches Generating Facility – from American Renewables, LLC on Oct. 9, noting at the time that it would move ahead with construction and bring the plant on line in the summer of 2012. The plant's output is committed to Austin Energy in a 20-year agreement that will help the city of Austin, Texas, meet a 30-percent renewable energy goal.
>
> Construction of the Nacogdoches facility will take about 32 months and will generate about 300 construction jobs. Approximately 40 permanent jobs will be created to operate the plant.
>
> Total cost of the project will be between $475 million and $500 million. The plant, which will be built on 165 acres, will be fueled with biomass materials, including forest residue from the surrounding areas, wood processing residues and clean municipal wood waste. The project will require approximately 1 million tons of fuel annually, which is planned to be procured within a 75-mile radius of the project site.

The estimated capital cost of the Nacogdoches project, at between $4,750 and $5,000 per kW, is considerably higher than Entergy SPO's $3,500 per kW estimate in Table 4 above. As information is gathered in conjunction with the 2010 Renewable RFP, Entergy SPO's installed capital cost estimate may be revised accordingly.

A fairly recent development that appears to have slowed some new biomass projects as well as repowering projects is the possibility of stricter U.S. Environmental Protection Agency ("EPA") regulation of toxic pollutant emissions such as mercury from new and existing industrial boilers. U.S. EPA proposed the so-called tailoring rules in early 2010 and industry groups immediately expressed significant concerns.[7]

> In a provision particularly infuriating to biomass power generators and utilities alike, EPA has proposed to establish the MACT [Maximum Achievable Control Technology] standards on a pollutant-by-pollutant basis, meaning that the agency would determine the best-performing

[7] *EPA Boiler Regulations Will Strangle Biomass Power Plants*; August 26, 2010; EnergyDaily.

> emissions rate for each of the five pollutants and require existing plants to meet that standard.
>
> Industry critics of this approach said the agency effectively is requiring existing boilers to be reconfigured with controls to meet the best possible emission standards for each of the five HAPs [Hazardous Air Pollutants] —a requirement the industry, in uniform denunciation, said is impossible.

Prior to U.S. EPA's proposed regulations being announced, Georgia Power was actively considering converting their 163 MW coal-fired Mitchell power plant, which is dated and facing either retirement or costly pollution controls, to a 96 MW facility fueled with woody biomass. Georgia Power had already received regulatory approval from the Georgia Public Service Commission to move forward on the conversion. However, Georgia Power announced in January 2010 that it was delaying the project due to uncertainty with how U.S. EPA rules would be implemented.[8]

> "Georgia Power is committed to furthering the development of renewable energy in Georgia," said Jeff Burleson, Georgia Power's Director of Resource Policy and Planning. "We're disappointed to have to delay this large biomass project and the benefits it can deliver. However, by delaying capital spending on the project we're significantly reducing the cost risk to customers."

For similar reasons, as well as due to cost uncertainty and lower natural gas prices, several other utilities have recently announced cancellations in biomass greenfield and repowering projects. Outright cancellations include FirstEnergy Corp. canceling plans to repower two coal-fired units at its R.E. Burger Plant in

[8] *Georgia Power to Delay Plant Mitchell Conversion to Biomass*; January 8, 2010; PRNewswire.

Shadyside, Ohio[9] and Xcel Energy Inc. which was planning a biomass gasification project near Ashland, Wisconsin.[10]

> The [Xcel's] decision came as a result of a significant increase in the cost of the project, as well as declining costs for other generation options. The utility also cited "considerable regulatory uncertainty at the state and federal level." ...The company had initially pegged the project at $58.1 million, but after more work it was determined that it would cost $79.5 million -- an increase of nearly 37%. ..."Based on those costs, and the fact that other renewable resources are becoming more cost effective, and natural gas prices are dropping, it was real hard for us to go ahead and push the project through now, when we could get other renewables in a much more cost-effective manner," Donovan said.

However, in a reversal of its original proposal, U.S. EPA announced on February 23, 2011 that its new MACT rules will require biomass and oil-fired boilers only having to perform regular tune-ups, and that new small units must meet a work practice standard.[11] Given that the decision was just announced by U.S. EPA, it is too early to tell whether or not this reversal will sufficiently reduce environmental-related regulatory uncertainty for biomass-fueled generators.

**Hydro In-Stream (Hydrokinetic)**

At present, there are various studies underway related to in-stream hydrokinetic technologies, but no project is considered commercially operating. The most advanced test project is located in New York City in the East River where the Roosevelt Island Tidal Energy ("RITE") project has been testing windmill-like turbines since 2006.[12] The

---

[9] *No Biomass at Burger as FirstEnergy Opts To Close Coal-fired Units*; November 18, 2010; RenewableEnergyWorld.com

[10] *Xcel halts biomass plant in Ashland*; November 30, 2010; McClatchy-Tribune Regional News.

[11] EPA's final boiler MACT rule spares biomass, new small units; February 24, 2011; SNL.

[12] *Going with the Flow: Hydrokinetic Power Developers Face Technical and Regulatory Hurtles in Bid to Tap Tides*; March 16, 2010; Scientific American.

test project is led by Verdant Power and consists of six windmill-like turbines with each turbine about five meters in diameter and anchored to the bottom of the East River in water that is about nine meters deep. Aesthetically, the turbines look like conventional 3-bladed wind turbines that are used in land-based wind farms, albeit they are much smaller. After approximately 9,000 hours of operation, the turbines were removed from the water and underwent testing on the materials and components. Based on public information, Verdant has redesigned the turbines and installation configuration and applied to FERC in December 2010 for a license for an expanded, commercial installation.[13] If the FERC approves the company's application, the resulting license would allow Verdant Power to build out the RITE project in the East River to a 1 MW, 30-turbine system that would allow commercial delivery of the energy generated to the local grid.

Another company currently doing testing is Hydro Green Energy, LLC which installed a 35 kW test turbine near Hastings, Minnesota in February 2009 to evaluate its turbine technology at a U.S. Army Corps of Engineers lock-and-dam system on the Mississippi River. According to a news release issued by the company, several studies have been completed and submitted to address fish survival.[14] The company has also said that their main goal at this time is to log as many testing hours as possible and that getting FERC approval may require anywhere from 10,000 to 25,000 hours of cumulative operation.[15]

---

[13] http://verdantpower.com/what-initiative/
[14] http://www.hgenergy.com/; January 6, 2010 News Release
[15] *Going with the Flow: Hydrokinetic Power Developers Face Technical and Regulatory Hurtles in Bid to Tap Tides*; March 16, 2010; Scientific American.

Louisiana continues to be a focal point for in-stream hydrokinetic development along the Mississippi and Atchafalaya Rivers. At present, it is the Entergy SPO's understanding that Free Flow Power Corporation ("Free Flow Power") is the only developer of in-stream hydrokinetic projects to advance beyond the earliest stages of the FERC commercial licensing process. A FERC Study Order issued January 27, 2010 mandated Free Flow Power conduct eleven studies and also deploy four turbines on pilings in the Mississippi River. It is unclear whether the company has filed a plan to meet these requirements. As of February 2011, there appears to be three private developers and one municipal utility holding FERC preliminary permits for in-stream hydrokinetic projects that would reside exclusively within Louisiana (note that there are additional projects along the Mississippi River that share project boundaries with the State of Mississippi).[16]

Regarding pilot projects in Louisiana, it is the Companies' understanding that Free Flow Power continues to pursue approved procedures and protocols that could allow testing of their turbine technology in the Mississippi River to commence sometime in 2011. In addition to the FERC, Free Flow Power has been working with the U.S. Corps of Engineers and the U.S. Fish and Wildlife Service, among other federal and state agencies, to obtain various approvals in order to move forward.[17] From a commercial standpoint, it appears from publicly available information that hydrokinetic technologies require substantial additional testing and, thus, may require an additional 2+ years to

[16] These are Free Flow Power Corporation (24 Preliminary Permits), MARMC Enterprises, LLC (3 Preliminary Permits), UEK Corporation and Prospect Energy, LLC (2 Preliminary Permits), and finally the City of Morgan City (1 Preliminary Permit).
[17] http://www.free-flow-power.com/Documents.html

achieve needed FERC approvals in order to demonstrate commercial deployment. Entergy's SPO is unaware of any ocean, tidal, or wave market projects being contemplated in Louisiana.

**Solar PV**

As can be seen from Table 5, a large number of commercial-scale and larger solar PV projects have been developed in recent years. Further, installed costs have continued to decrease due to lower panel and component costs, which in turn appears to be driven by increased exports from low-cost manufacturers in China, as noted above. In terms of where solar PV projects are being developed, on a dollar value basis, it appears that most solar PV capacity is being installed where solar insolation is highest (*i.e.*, the western part of the U.S.), in states with high electric rates relative to the U.S. average, and in states with favorable incentive policies for commercial solar projects (*e.g.*, Pennsylvania and North Carolina). Table 7 below summarizes the top 10 states for 1603 grants to solar PV projects along with statewide average commercial electric rates for the most recent time period available (January – November 2010).

**INTENTIONALLY LEFT BLANK**

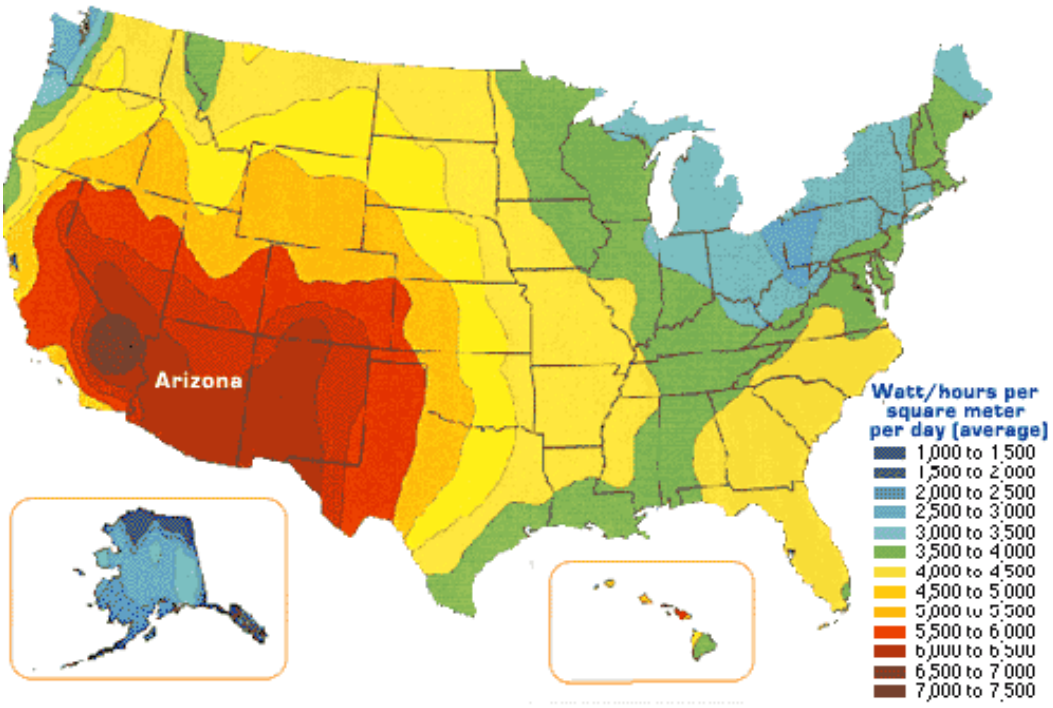
**Table 7. Top 10 States for Solar PV 1603 Grants (as of February 21, 2011).**

| State | # Grants | Grant $s | % of Grant $s | Average Grant $s | Average Commercial Rate (¢/kWh) |
|---|---|---|---|---|---|
| California | 227 | $181,726,488 | 35% | $800,557 | 14.2 |
| New Jersey | 204 | $86,895,268 | 17% | $425,957 | 14.0 |
| Florida | 87 | $74,729,164 | 14% | $858,956 | 9.8 |
| Arizona | 66 | $35,843,129 | 7% | $543,078 | 9.5 |
| Colorado | 155 | $22,251,407 | 4% | $143,557 | 9.1 |
| Massachusetts | 91 | $21,136,559 | 4% | $232,270 | 15.3 |
| Pennsylvania | 146 | $20,117,355 | 4% | $137,790 | 10.2 |
| Connecticut | 22 | $19,916,400 | 4% | $905,291 | 16.5 |
| Hawaii | 30 | $10,700,187 | 2% | $356,673 | 25.9 |
| North Carolina | 22 | $9,831,828 | 2% | $446,901 | 8.2 |
| **Totals*** | **1,050** | **$483,147,785** | **93%** | **$460,141** | **10.3** |

Solar insolation is a commonly used measure to evaluate the potential efficiency and electricity production of solar PV and refers to the amount of solar radiation energy received on a given surface area over a given amount of time. It is generally expressed in terms such as average Watt-hours per square meter per day. Chart 3 below shows average daily solar insolation for the U.S.

**INTENTIONALLY LEFT BLANK**

**Chart 3: Average Daily Solar Insolation in the U.S.**




## Wind Off-System

Based on the 1603 grant data summarized in Table 5 and information available from the American Wind Energy Association ("AWEA"),[18] renewable investment in the U.S. continues to be dominated by large-scale, land-based wind projects. Although installations in 2010 were significantly below the amount of wind capacity that came on-line in 2008 and 2009, it is not a surprising that new land-based wind capacity dwarfs all other renewable technologies combined given the relative cost competitiveness of land-based wind resources. Table 8 below summarizes recent development activity as well as 1603 grant awards in the top 10 states for projected installed capacity.

[18] http://www.awea.org/la_usprojects.cfm

**Table 8: Land-Based Wind Development in the U.S.**

| State | Existing Wind Capacity (MW) | Under Construction (MW) | Total Projected (MW) | % of Total Projected U.S. Wind Capacity | # Wind Grants | Wind Grant $s | % of Wind Grant $s | Average Wind Grant $s |
|---|---|---|---|---|---|---|---|---|
| Texas | 9,727 | 350 | 10,077 | 23% | 15 | $1,367,341,813 | 27% | $91,156,121 |
| Iowa | 3,670 | 0 | 3,670 | 8% | 7 | $274,846,418 | 6% | $39,263,774 |
| California | 2,739 | 443 | 3,182 | 7% | 5 | $6,016,759 | 0.1% | $1,203,352 |
| Oregon | 2,095 | 201 | 2,296 | 5% | 16 | $332,332,445 | 7% | $20,770,778 |
| Washington | 1,964 | 735 | 2,699 | 6% | 5 | $373,305,491 | 7% | $74,661,098 |
| Illinois | 1,848 | 587 | 2,435 | 6% | 8 | $679,395,407 | 14% | $84,924,426 |
| Minnesota | 1,818 | 677 | 2,495 | 6% | 6 | $43,723,930 | 1% | $7,287,322 |
| Oklahoma | 1,130 | 709 | 1,839 | 4% | 1 | $52,254,333 | 1% | $52,254,333 |
| Colorado | 1,248 | 552 | 1,800 | 4% | 2 | $99,960,727 | 2% | $49,980,364 |
| North Dakota | 1,222 | 202 | 1,424 | 3% | 3 | $159,255,458 | 3% | $53,085,153 |
| **Totals** | **27,461** | **4,456** | **31,917** | **73%** | **68** | **$3,388,432,781** | **68%** | **$49,829,894** |
| **U.S.** | **36,698** | **6,925** | **43,623** | **100%** | **122** | **$4,993,850,210** | **100%** | **$40,933,198** |

Regions with significant wind installations such as the Electric Reliability Council of Texas ("ERCOT"), the Midwest Independent System Operator ("Midwest ISO"), and the Bonneville Power Agency ("BPA") in the Pacific Northwest appear to be developing more tools and solutions to address the operational challenges presented by adding large amounts of intermittent resources. These new tools include incorporating better forecasting using real-time wind speed and operational data collected in the field, developing more rigorous communication protocols with wind farm operators, and incorporating more explicit pricing mechanisms that account for the intermittent nature of resources such as wind and solar. Some regions are also adding new back-up capacity that can be started with very short notice. For example, a project near San Antonio, Texas was announced in early 2008 to add approximately 202 MW of peaking capacity that would utilize natural gas-fired reciprocating engines.[19] Besides providing peaking

[19] *South Texas Electric Cooperative awards $100M power plant contract*; January 14, 2008; San Antonio Business Journal.

power, such a facility would also be capable of helping compensate for the effects of wind intermittency by providing ancillary and other grid support services to ERCOT.

Another approach being explored to address intermittency is compressed air energy storage ("CAES"). A CAES facility would utilize a wind farm to compress air and store it in an underground cavern, mostly during off-peak periods when wind speeds tend to be higher. To produce power during on-peak periods, the compressed air would be released and mixed with a fuel such as natural gas in a gas-fired reheat high pressure and low pressure expansion turbine to produce electricity. A CAES project using conventional generation has been in place in Alabama for many years, but several such projects using wind farms are being planned in Iowa and Texas.[20]

**Wind On-System**

Public announcements regarding land-based wind projects in and around the immediate four state Entergy System territory (Arkansas, Louisiana, western Mississippi, and southeast Texas) have been limited to several potential projects in Northwest Arkansas. However, in a recent announcement, a potential project in Washington County, Arkansas being developed by Invenergy LLC was halted due to the presence of an endangered bat species.[21] Setting aside the on-going evaluation of the bids just received in the 2010 Renewable RFP, Entergy's SPO is not aware of any other publicly announced land-based wind projects being developed in the Entergy System territory.

---

[20] *Intermittent Wind: Problems and a Possible Solution*; Volume 112, Issue 6, June 2008; Power Engineering; PennEnergy.
[21] *Bats scuttle plans for NW Arkansas wind farms*; October 18, 2010; Associated Press.

From a technology development standpoint, it appears turbine manufacturers are beginning to develop utility-scale wind turbines designed to operate at higher elevations and to be located in areas that have lower average wind speeds. In a recent announcement, a company called Wind Capital Group is proposing a 150 MW wind energy project to be located in Palm Beach County, Florida.[22] Florida, like Arkansas, Mississippi and Louisiana, currently has no installations of large-scale (greater than 1 MW) wind turbines. A spokesman for Wind Capital Group stated as part of the project's announcement:

> "Wind Capital Group has always been about getting a first-mover advantage in looking for places where you can do large, utility-scale wind development where nobody else was looking, and this location is a perfect example of that," Wyche said. "Right now, there are turbines that are ready to deploy that could turn what would have been a very marginal wind site into an efficient wind site."

Entergy's SPO and the Companies will continue to monitor projects such as the Wind Capital Group project in Florida to better understand project economics and potential viability for Louisiana.

**Wind Offshore**

Since the issuance of Staff's Final Report and Policy Strawman in February 2010, there has continued to be widespread planning and permitting activity for proposed offshore wind projects along the eastern U.S. seaboard. Thus far, no offshore wind projects have broken ground off the coast of the U.S., but at least one project has received state regulatory approval for a long-term power purchase agreement ("PPA") with a

[22] *Wind Capital Group plans 150-MW wind project in Florida*; February 18, 2011; SNL.

utility. However, based on recent publicly available utility filings and various media reports, there also appears to be growing public awareness regarding the high costs of offshore wind relative to conventional fossil generation as well as existing renewable resources such as land-based wind.

Most recently, in a proceeding in Massachusetts, the Department of Public Utilities ("DPU") approved a 15-year PPA on November 22, 2010, between National Grid USA and Cape Wind Associates.[23] The PPA is for 50% of the output of Cape Wind's 468 MW offshore wind farm to be constructed in Nantucket Sound, Massachusetts. The PPA includes capacity, energy, and all renewable energy attributes and sets the initial price at 18.7 cents per kWh in 2013, when the project is expected to be on-line, with the price increasing 3.5% per year for 15 years culminating in a nominal price in excess of 30 cents per kWh. The Massachusetts DPU's order approving the PPA notes that the projected costs are expensive by comparison to available alternatives, but that the project would provide several benefits including assisting National Grid and the State of Massachusetts in complying with renewable energy and greenhouse gas emissions reduction requirements, enhancing electricity reliability, moderating system peak load, and creating additional employment. However, Cape Wind's proposed Nantucket Sound project continues to face various challenges to beginning construction, with the most recent being an appeal of an air quality permit issued by the U.S. EPA.[24]

Other states in the region are also in varying stages of pursuing development of offshore wind projects, including Rhode Island, New Jersey, and Maryland. For

[23] *Cape Wind offshore wind contract with National Grid gets green light*; November 22, 2010; SNL Interactive.
[24] Cape Wind appeal focuses on New Bedford; February 16, 2011; www.southcoasttoday.com

example, legislators in New Jersey considered, but did not pass, a bill in 2010 to promote development of offshore wind projects. Bob Martin, Commissioner of New Jersey's Department of Environmental Protection, appeared before the New Jersey Senate Budget and Appropriations Committee in June 2010 to support the proposed legislation. When he was questioned as to the potential costs of offshore wind projects:

> Martin did not deny the expense of offshore wind, but said at 18 cents to 24 cents per kWh, it is less costly than solar energy, which costs 60 cents to 70 cents per kWh. "The answer is yes, there will be increases on rates," he said. "There's no doubt about it. But the whole idea is to offset that with job growth in this state with a whole new industry.[25]

Similar to the efforts in New Jersey described above, Maryland Governor Martin O'Malley is proposing legislation that would require electric utilities in Maryland to sign fixed price, multi-decade PPAs with proposed offshore wind projects to be constructed off the coast. [26]

In the southern U.S., there appears to have been some planning activity for utility-scale, offshore wind projects off the coasts of North Carolina and Texas. However, a number of challenges exist that are currently hindering projects from moving forward including unfavorable project economics relative to alternatives, lower natural gas prices, and development of turbines and towers that can withstand hurricane-force winds. In the Gulf of Mexico, activity has been limited to the sale of seven leases by the Texas General Land Office for sites within 10 miles of the coast between Corpus Christi and Galveston.

---

[25] *NJ official: Offshore wind expensive, but will bring jobs*; June 25, 2010; SNL Interactive.
[26] *Md. governor readies offshore wind power mandate*; February 9, 2011; Wall Street Journal.

In a recent article, one of the developers of the planned Texas offshore wind projects commented on the pace of development:[27]

> Herman Schellstede, chairman of Wind Energy Systems Technology, said Friday [September 17, 2010] that his company holds five of those seven Texas leases, and that Wind Energy and partner Coastal Point Energy eventually plan to co-develop a total of 2,190 MW of offshore wind capacity at those five sites, which range from near Galveston to near Corpus Christi. Schellstede acknowledged that low natural gas prices and low power prices in Texas have slowed the development of offshore wind projects, but said that he expects gas and power prices will return to more normal levels in two years or so.

Entergy's SPO and the Companies will continue to monitor project activity along the eastern U.S. and in the Gulf of Mexico to better understand project economics, potential risks, and the likelihood of successfully developing offshore wind projects off the coast of Louisiana in the coming years.

**Geothermal**

Similar to land-based wind, a handful of states currently dominate geothermal installations in the U.S. In fact, only nine states currently have any installed geothermal capacity with just three states, California, Nevada and Utah, having nearly 99% of the total. Further, basically 100% of the 1603 grant awards to-date for new geothermal projects have been made to the same three states. Table 9 below summarizes currently installed capacity and 1603 grant award information.

**INTENTIONALLY LEFT BLANK**

[27] *Big potential seen for wind*; September 20, 2010; Platt's Electric Power Daily.

**Table 9: Geothermal Electric Capacity in the U.S.**

| State | Existing Geothermal Capacity (MW) | % of Total U.S. Geothermal Capacity | # Geothermal Grants | Wind Grant $s | % of Wind Grant $s | Average Wind Grant $s |
|---|---|---|---|---|---|---|
| California | 2,565.5 | 83% | 1 | $108,285,626 | 42% | $108,285,626 |
| Nevada | 426.8 | 14% | 2 | $119,393,385 | 46% | $59,696,693 |
| Utah | 42.0 | 1.4% | 1 | $32,990,089 | 13% | $32,990,089 |
| Hawaii | 35.0 | 1.1% | --- | --- | N/A | N/A |
| Idaho | 15.8 | 0.5% | --- | --- | N/A | N/A |
| Alaska | 0.7 | 0.02% | --- | --- | N/A | N/A |
| Oregon | 0.3 | 0.01% | --- | --- | N/A | N/A |
| Wyoming | 0.3 | 0.01% | --- | --- | N/A | N/A |
| New Mexico | 0.2 | 0.01% | --- | --- | N/A | N/A |
| **Totals** | **3,087** | **100%** | **4** | **$260,669,100** | **100%** | **$65,167,275** |
| **U.S.** | **3,087** | **100%** | **5** | **$260,674,171** | **100%** | **$52,134,834** |

In terms of development activity in Louisiana and adjacent states, the Geothermal Energy Association lists several projects being developed as of April 2010.[28] One proposed project in Louisiana would involve a small 50 kW geothermal hydrocarbon co-production ("GHCP") unit to be located at a producing gas field. The project is apparently being developed by two companies, Gulf Coast Green Energy and ElectaTherm, but no public information about the project appears to be available. The other Louisiana project involves producing approximately 5 MW from a geo-pressured resource at an oil and gas field in Cameron Parish. That project is being developed by Louisiana Geothermal, LLC, but the current status of the project is unclear. In nearby states, Gulf Coast Green Energy and ElectaTherm are apparently developing a 50 kW GHCP project in Mississippi and a company called Universal GeoPower[29] is developing a 400 kW GHCP project in Liberty County, Texas, which appears to be in the Entergy Texas, Inc. service area. As additional information

[28] U.S. Geothermal Industry Update; April 2010; Geothermal Energy Association.
[29] http://www.universalgeopower.com/

becomes publicly available, Entergy's SPO and the Companies will continue to monitor these activities to better understand project economics and viability of geothermal resources in Louisiana.

Respectfully submitted,

Kathryn J. Lichtenberg, Bar No. 1836
Karen H Freese, Bar No. 19616
Walter F. Wolf, III, Bar No. 21953
Matthew T. Brown, Bar No. 25595

BY: Walter F. Wolf III
639 Loyola Avenue, L-ENT-26E
New Orleans, Louisiana 70113
Telephone: (504) 576-4330 (voice)
(504) 576-5579 (facsimile)

**ATTORNEYS FOR**
**ENTERGY LOUISIANA, LLC AND**
**ENTERGY GULF STATES**
**LOUISIANA, INC.**

## CERTIFICATE OF SERVICE

I, the undersigned counsel, hereby certify that a copy of the above and foregoing has been served on the persons listed below by facsimile, electronic mail, hand delivery and/or by mailing said copy through the United States Postal Service, postage prepaid, and addressed as follows:

Brian McManus – Economics Division
Louisiana Public Service Commission
P.O. Box 91154
Galvez Building, 12th Floor
602 North Fifth Street
Baton Rouge, LA 70802-9154

Melanie Verzwyvelt – Legal Division
Louisiana Public Service Commission
P.O. Box 91154
Galvez Building, 12th Floor
602 North Fifth Street
Baton Rouge, LA 70802-9154

Donnie Marks – Utilities Division
Louisiana Public Service Commission
P.O. Box 91154
Galvez Building, 12th Floor
602 North Fifth Street
Baton Rouge, LA 70802-9154

Commissioner Foster L. Campbell
Office of the Commissioner
District 5 - Shreveport
P.O. Drawer E
Shreveport, LA 71161

Commissioner Eric F. Skrmetta
Office of the Commissioner
District 1 – Metairie
100 Lilac Street
Metairie, LA 70005

Vice-Chairman James M. Field
Office of the Commissioner
District 2 – Baton Rouge
Post Office Box 2681
Baton Rouge, LA 70821

Chairman Lambert C. Boissiere, III
Office of the Commissioner
District 3 – New Orleans
1100 Poydras Street, Suite 1020
New Orleans, LA 70163

Commissioner Clyde C. Holloway
Office of the Commissioner
District 4 – Forest Hill
P.O. Box 340
Forest Hill, LA 71430

Tulin Koray – Economics Division
Louisiana Public Service Commission
P.O. Box 91154
Galvez Building, 12th Floor
602 North Fifth Street
Baton Rouge, LA 70802-9154

Mark D. Kleehammer
Entergy Services, Inc.
4809 Jefferson Highway
Mail Unit L-JEF-357
Jefferson, LA 70121

John H. Chavanne
Chavanne Enterprises
111 West Main Street, Suite 2B
P.O. Box 807
New Roads, LA 70760-0807

David L. Guerry
Jamie Hurst Watts
Long Law Firm, LLP
One United Plaza, Suite 500
4041 Essen Lane
Baton Rouge, LA 70804

Kirby P. Funderburke
Director, Wood Supply Strategy
Mead Westvaco Corporation
PRG Covington Mill
ERP Building, Room 57
104 East Riverside Street
Covington, VA 24426-1238

Bobby S. Gilliam
Wilkinson Carmody & Gilliam
P.O. Box 1707
Shreveport, LA 71166

Kyle C. Marionneaux
Kara B. Kantrow
Law Office of Kyle Marionneaux, LLC
10101 Siegen Lane, Building 2, Suite A
Baton Rouge, LA 70809-4982

Thomas W. Milliner
Alliance for Affordable Energy
1001 S. Broad St., #119
New Orleans, LA 70125

Gloria D. Smith
85 Second Street, 2nd Floor
San Francisco, CA 94105

J.A. "Jay" Beatmann, Jr.
Michael C. Code
Uddo, Beatmann & Code, LLC
3445 North Causeway Blvd., Suite 724
Metairie, LA 70002

Jennifer J. Vosburg
112 Telly Street
New Roads, LA 70760

Mike French
La. Dept. of Natural Resources
P.O. Box 94396
Baton Rouge, LA 70804-9396

Blake K. Cooper
Roy O. Martin Lumber Company
P O Box 1110
Alexandria, LA 71390-1110

Mike Wolff
Weyerhaeuser Company
5810 Hwy. 1 Bypass
Natchitoches, LA 71457

Jason Tournillon
GT Environmental Finance, LLC
816 Congress Avenue, Suite 1220
Austin, TX 78701-2544

David G. Gadda
1111 West Jefferson Street
P.O. Box 50
Boise, ID 83728

Brian Breaux
P.O. Box 95004
Baton Rouge, LA 70895-9004

Becky Mowbray
The Times-Picayune
3800 Howard Ave.
New Orleans, LA 70125

Frank Neelis
Tangipahoa Future Network
47175 Chemekette Road
Robert, LA 70455-1719

Father Bill Crumbly
P.O. Box 278
Charenton, LA 70523

D'Juan M. Hernandez
Sun Energy Group, LLC
950 Poydras St., Suite 2525
New Orleans, LA 70130

Jordan E. Macha
Sierra Club
716 Adams Street
New Orleans, LA 70118

Lane Kollen
Phil Hayet
Stephen J. Baron
J. Kennedy & Associates
570 Colonial Park Drive, Suite 305
Roswell, GA 30075

Jon Guidroz
Free Flow Power
220 Camp Street, 4th Floor
New Orleans, LA 70130

Paul Thomsen
Ormat, Inc.
6225 Neil Road
Reno, NV 89511

Joey Cordill
P O Box 14204
Baton Rouge, LA 70898

Jim Simon
American Sugar Cane League
P O Drawer 938
Thibodaux, LA 70302-0938

Robert W. Kerrigan
The Kerrigan Company
6757 Louisville Street
New Orleans, LA 70124

Richard Vlosky
School of Renewable Natural Resources
LSU Agricultural Center
Room 227
Baton Rouge, LA 70803

C.A. "Buck" Vandersteen
The Louisiana Forestry Association
P.O. Box 5067
Alexandria, LA 71307-5067

Wayne K. Phillips
SLEMCO
P.O. Box 90866
Lafayette, LA 70509

Sun Joseph Chang
1617 Louray Drive
Baton Rouge, LA 70808

Anthony A. Coker, Sr.
Director Strategic Relationships
5775 Peachtree Industrial Blvd.
Norcross, GA 30092

Ann Reiley Jones
Blairstown Plantation
4100 Bob Jones Road
Clinton, LA 70722

David Y. McGee, P.E. CEM
Technology Assessment Division
Louisiana Dept. of Natural Resources
P.O. Box 94396
Baton Rouge, LA 70804

David E. Dismukes, Ph.D.
Center for Energy Studies
Louisiana State University
Baton Rouge, LA 70803

Cornelis F. de Hoop
227 Renewable Natural Resources Bldg.
LSU
Baton Rouge, LA 70803-6202

John O. Shirley
Paul F. Guarisco
Phelps Dunbar, LLP
II City Plaza
400 Convention Street, Suite 1100
Baton Rouge LA 70802-5618

Steven O. Stewart, Regional Manager
MA/MS
Soterra, LLC
P O Box 867
Pine Grove, LA 70453

Wade Dubea
P O Box 1628
Baton Rouge, LA 70821

David Lamothe
American Developments, LLC
108 Joliet Street
New Iberia, LA 70563

Daniel Bullock
U.S. Department of Energy Gulf Coast Clean Energy Application Center
4800 Research Forest Drive
The Woodlands, TX 77381

Marjorie A. McKeithen
Jones, Walker, Waechter, Poitevent, Carrere & Denegre, LLP
201 St. Charles Avenue, Suite 5100
New Orleans, LA 70170-5100

Phillip A. Gayle, Jr.
Louisiana Geothermal, LLC
P O Box 1863
Lake Charles, LA 70602

Marjorie A. McKeithen
Jones, Walker, Waechter, Poitevent, Carrere & Denegre, LLP
Louisiana Geothermal, LLC
201 St. Charles Avenue, 50th Floor
New Orleans, LA 70170

Mike McMahon, COO
1980 Post Oak Boulevard, Suite 1450
Houston, TX 77056

Adam Haddox
Capitol Resources, LLC
251 Florida Street, Suite 412
Baton Rouge, LA 70801

Jose Ibietatorremendia
Lars Kvale
APX Environmental Markets, Inc.
111 River Street, Suite 1204
Hoboken, NJ 07030

Robert Samford
Director Governmental Affairs
Temple-Inland
401 W. 15th Street, Suite 840
Austin, TX 78701

Wade Byrd
Byrd Energy
16544 Quiet Oaks Avenue
Greenwell Springs, LA 70739

Justin Runnels
Lite Solar, Corp.
3348 Drusilla Lane, Suite 3C
Baton Rouge, LA 70809

Irene A. Kowalczky
Director, Energy Policy & Supply
MeadWestvaco Corporation
299 Park Ave., 13th Floor
New York, NY 10171

Ronald Williams
Williams Bradbury, P.C.
1015 W. Hays Street
Boise, ID 83702

Ronald R. Hull
Chief Counsel, Cellulose, Fiber & Trading
Georgia-Pacific LLC.
133 Peachtree St. N.E.
Atlanta, GA 30303

Greg Comatas
International Paper
Manager—Global Energy Sourcing
6400 Poplar Ave., Tower 1 8-014
Memphis, TN 38197

Luke F. Piontek
J. Kenton Persons
Gayle T. Kellner
Roedel, Parsons, Koch, Blache, Balhoff, & McCollister
8440 Jefferson Highway, Suite 301
Baton Rouge, LA 70809

Roger Martella
James Coleman
Sidley Austin LLP
1501 K. Street NW
Washington, DC 20005

Temple-Inland Legal Department
1300 S. MoPac Expy, 3rd Floor
Austin, TX 78746
ATTN: Group General Counsel—Transactions

Scott Blickenstaff
Attorney
Boise Packaging & Newsprint, L.L.C.
Post Office Box 990050
Boise, ID 83799-0050

Ronald Williams
Williams Bradbury, P.C
1015 W. Hays Street
Boise, ID 83702

Robert T. Tonti
Rain CII Carbon LLC
2627 Chestnut Ridge Rd.
Suite 200
Kingwood, TX 77339

Elwood F. Cahill, Jr.
Sher Garner Cahill Richter Klein & Hilbert, L.L.C.
909 Poydras Street, Suite 2800
New Orleans, LA 70112

New Orleans, Louisiana, this 28th day of February, 2011

Walter F. Wolfe